

wherein,

43 an upper portion of said stacked film is formed into a ridge-like stripe, to form a current injection region;

a current injection width W_{st} of said current injection region is in a range of $1 \mu m \leq W_{st} \leq 3 \mu m$;

a current non-injection region formed on both sides of said ridge-like stripe;

at least part of said current non-injection region is made from a material expressed by a chemical formula $Al_xGa_{1-x}N$ ($0 \leq x \leq 1.0$); and

the component ratio "x" of Al is in a range of $0 \leq x \leq 0.15$, so that said semiconductor laser light emitting device is configured as a gain guide type laser light emitting device.

Please cancel claims 2, 10, and 18 without prejudice:

REMARKS

In the Office Action of July 17, 2002, claims 1-24 are pending and under consideration.

The Examiner made the following dispositions:

- A.) Rejected claims 1-8 under U.S.C. §102(b) as being anticipated by *Kamimura et al.* (JP 09-232680-A).
- B.) Rejected claims 9-16 under U.S.C. §102(b) as being anticipated by *Kume et al.* (U.S. Patent No. 5,923,690).

C.) Rejected claims 17-24 U.S.C. §102(b) as being anticipated by *John et al.* (JP 10-093140-A)

These rejections are non-final. Applicants respectfully traverse this rejection.

A. Rejection of claims 1-8 under §102 (b):

Regarding the rejection of claims 1-8, amended independent claim 1 claims that the width W_{st} of a current injection region is in a range of $1\ \mu\text{m} \leq W_{st} \leq 3\ \mu\text{m}$. Further, claim 1 recites an Al composition for the buried structure which gives an index type lasing in which the component ratio of “x” of Al is in the range of $0.3 \leq x \leq 1.0$.

This is clearly unlike *Kamimura et al.* whose current injection region has a stripe width of $5\ \mu\text{m}$ to $10\ \mu\text{m}$. The thickness described by *Kamimura et al.* does not have any correlation to how the laser can be stimulated in the way of index-type lasing that is the main aspect of claim 1. *Kamimura et al.* fails to disclose or even to suggest the importance of the stripe width for a single lateral mode.

Therefore, for the reasons above, *Kamimura et al.* fails to anticipate what is taught and claimed in Applicants’ claim 1.

Claims 3-8 depend directly or indirectly from claim 1 and are therefore allowable for at least the same reasons that claim 1 is allowable.

Applicants respectfully submits the rejection has been overcome and requests that it be withdrawn.

B. Rejection of claims 9-16 under §102 (b):

Regarding the rejection of claims 9-16, amended independent claim 9 also claims that the width W_{st} of the current injection region to be in a range of $1\text{ }\mu\text{m} \leq W_{st} \leq 3\text{ }\mu\text{m}$. Further, claim 9 recites an Al composition for the buried structure which gives weak index type lasing in which the component ratio of “x” of Al is in the range of $0.15 < x < 0.30$.

This is clearly unlike *Kume et al.*, which does not teach or even suggest that the current injection region should have the stripe width range from $1\text{ }\mu\text{m} \leq W_{st} \leq 3\text{ }\mu\text{m}$. It also does not teach or even suggest that the component ratio of Al to be in the range of $0.15 < x < 0.30$. The range of current non-injection region described by *Kume et al.* does not have any correlation to how the laser can be stimulated in the way of weak index type laser that is the main aspect of claim 9. *Kume et al.* fails to disclose or even to suggest the importance of the stripe width for a single lateral mode in the current injection region and the composition of Al for the current non-injection region.

Therefore, for the reasons above, *Kume et al.* fails to anticipate what is taught and claimed in Applicants’ claim 9.

Claims 11-16 depend directly or indirectly from claim 9 and are therefore allowable for at least the same reasons that claim 9 is allowable.

Applicants respectfully submits the rejection has been overcome and requests that it be withdrawn.

C. Rejection of claims 17-24 under §102 (b):

Regarding the rejection of claims 17-24, amended claim 17 also claims that the width W_{st} of the current injection region to be in a range of $1\text{ }\mu\text{m} \leq W_{st} \leq 3\text{ }\mu\text{m}$. Further, claim 17

recites an Al composition for the buried structure which gives a gain guide type lasing in which the component ratio of “x” of Al is in the range of $0 \leq x \leq 0.15$.

This is clearly unlike *John et al.*, which does not teach or even suggest that the current injection region should have the stripe width range from $1 \mu\text{m} \leq W_{\text{st}} \leq 3 \mu\text{m}$. It also does not teach or even suggest that the component ratio of Al to be in the range of $0 \leq x \leq 0.15$. The range of current injection region described by *John et al.* does not have any correlation to how the laser can be stimulated in the way of gain guide type laser that is the main aspect of claim 17. *John et al.* fails to disclose or even to suggest the importance of the stripe width for a single lateral mode in the current injection region and the composition of Al for the current non-injection region.

Therefore, for the reasons above, *John et al.* fails to anticipate what is taught and claimed in Applicants’ claim 17.

Claims 19-24 depend directly or indirectly from claim 17 and are therefore allowable for at least the same reasons that claim 17 is allowable.

Applicants respectfully submits the rejection has been overcome and requests that it be withdrawn.

CONCLUSION

In view of the foregoing, it is submitted that pending claims are patentable over the reference cited by the Examiner. Further, all of the Examiner’s objections and rejections have

been addressed herein. It is, therefore, submitted that the application is in condition for allowance. Notice to that effect is respectfully requested.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims -

Please amend claims 1, 9, and 17 as follows:

1. (Once amended.) [In] a semiconductor laser light emitting device comprising:

a stacked film composed of a stack of group III nitride semiconductor films each containing at least one kind selected from aluminum, gallium, indium, and boron;

wherein,

an upper portion of said stacked film is formed into a ridge-like stripe, to form a current injection region;

the width W_{st} of said current injection region is in a range of $1\ \mu\text{m} \leq W_{st} \leq 3\ \mu\text{m}$,

a current non-injection region formed on both sides of said ridge-like stripe; [and]

at least part of said current non-injection region is made from a material expressed by a chemical formula $\text{Al}_x\text{Ga}_{1-x}\text{N}$ ($0 \leq x \leq 1.0$); and

[the improvement wherein]

the component ratio “x” of Al is [specified at a value] in a range of $0.3 \leq x \leq 1.0$, so that said semiconductor laser light emitting device is configured as an index guide type semiconductor laser light emitting device.

9. (Once amended) [In] a semiconductor laser light emitting device comprising:

a stacked film composed of a stack of group III nitride semiconductor films each containing at least one kind selected from aluminum, gallium, indium, and boron;

wherein,

an upper portion of said stacked film is formed into a ridge-like stripe, to form a current injection region;

the width W_{st} of said current injection region is in a range of $1\ \mu\text{m} \leq W_{st} \leq 3\ \mu\text{m}$,

a current non-injection region formed on both sides of said ridge-like stripe; [and]

at least part of said current non-injection region is made from a material expressed by a chemical formula $\text{Al}_x\text{Ga}_{1-x}\text{N}$ ($0 \leq x \leq 1.0$); and

[the improvement wherein]

the component ratio “x” of Al is [specified at a value] in a range of $0.15 < x < 0.30$, so that said semiconductor laser light emitting device is configured as a weak index type pulsation semiconductor laser light emitting device.

17. (Once amended) [In] a semiconductor laser light emitting device comprising:

a stacked film composed of a stack of group III nitride semiconductor films each containing at least one kind selected from aluminum, gallium, indium, and boron;

wherein,

an upper portion of said stacked film is formed into a ridge-like stripe, to form a current injection region;

a current injection width W_{st} of said current injection region is in a range of $1\ \mu\text{m} \leq W_{st} \leq 3\ \mu\text{m}$,

a current non-injection region formed on both sides of said ridge-like stripe; [and]
at least part of said current non-injection region is made from a material expressed by a
chemical formula $\text{Al}_x\text{Ga}_{1-x}\text{N}$ ($0 \leq x \leq 1.0$); and
[the improvement wherein]
the component ratio “x” of Al is [specified at a value] in a range of $0 \leq x \leq 0.15$,
so that said semiconductor laser light emitting device is configured as a gain guide type laser
light emitting device.